IN THE CLAIMS:

Please add new claims 34, 35 and 36 as set forth below.
The accompanying transmittal letter authorizes charging of the
corresponding excess-claim fees to Hewlett-Packard deposit ac-
count 08-2025.

Applicants respectfully ask that these three new claims
be inserted to immediately follow original claims 1, 9, and 25
respectively.

1 1.   (original) Apparatus for printing a desired image on a
2 printing medium, based upon input image data, by construction
3 from individual marks formed in a pixel grid; said apparatus
4 comprising:
5   at least one multielement incremental-printing array that
6 is subject to colorant-deposition error;
7   means for measuring such colorant-deposition error of the
8 at least one array;
9   means for modifying a multicolumn, multirow numerical
10 tabulation that forms a mapping between such input image data
11 and such marks, to compensate for the measured colorant-depo-
12 sition error; and
13   means for printing using the modified mapping.

1 2.   (original) The apparatus of claim 1, wherein the mapping
2 is selected from the group consisting of:
3   an optical-density transformation of the image data to
4 such construction from individual marks; and
5   a spatial-resolution relationship between the image data
6 and such pixel grid.

3. (original) The apparatus of claim 2, wherein:

the optical-density transformation comprises a halftoning matrix; and

the spatial-resolution relationship comprises a scaling of the image data to such pixel grid.

4. (original) The apparatus of claim 1, wherein:

said at least one multielement incremental-printing array comprises a plurality of multielement printing arrays that print in a corresponding plurality of different colors or color dilutions, each multielement printing array being sub-ject to a respective colorant-deposition error; and

the measuring means and the mapping-modifying means each operate with respect to each one of the plurality of multiele-ment printing arrays respectively.

5. (original) The apparatus of claim 4, wherein:

for at least one of the plurality of multielement print-ing arrays, the colorant-deposition error comprises a respec-tive pattern of printing-density defects; and wherein:

the measuring means comprise means for measuring the pattern of printing-density defects for each multielement printing array respectively; and

the modifying means comprising means for applying the respective pattern of defects, for at least one of the mul-tielement printing arrays, to modify a respective said map-ping.

1   6.   (original) The apparatus of claim 4, wherein:

2   for at least one of the plurality of multielement print-

3   ing arrays, the colorant-deposition error comprises a swath-

4   height error;

5   the measuring means comprise means for measuring the

6   swath-height error for each multielement printing array re-

7   spectively; and

8   the modifying means comprise means for applying the

9   respective swath-height error, for at least one of the

10   multielement printing arrays, to modify a respective said

11   mapping.

1   7.   (original) The apparatus of claim 1, wherein:

2   the colorant-deposition error comprises a pattern of

3   printing-density defects;

4   the measuring means comprise means for measuring the

5   pattern of printing-density defects;

6   the modifying means comprise:

7

8   means for deriving a correction pattern from

9   the measured pattern of printing-density de-

10   fects, and

11

12   means for applying the correction pattern to modify

13   a halftone thresholding process; and

14

15   the printing means comprise means for printing such image

16   using the modified halftone thresholding process.

8. (original) The apparatus of claim 1, wherein:

the colorant-deposition error comprises a swath-height error or otherwise corresponds to a optimum distance of printing-medium advance;

the measuring means comprise means for measuring the swath-height error or determining the optimum distance;

the modifying means comprise:

means for deriving a correction pattern from the measured swath-height error or determined optimum distance, and

means for applying the correction pattern to modify a halftone thresholding process; and

the printing means comprise means for printing such image using the modified halftone thresholding process.

9. (original) A method of printing a desired image, by construction from individual marks formed in a pixel grid by at least one multielement printing array that is subject to a pattern of printing-density defects; said method comprising the steps of:

measuring such pattern of printing-density defects;

deriving a correction pattern from the measured pattern of printing-density defects;

applying the correction pattern to modify a halftone thresholding process; and

printing such image using the modified halftone thresholding process.

1   10. (original) The method of claim 9, for use with a print-
2   mask in plural-pass printing, and further comprising the steps
3   of, before or as a part of the applying step:
4   using such printmask to determine a relationship between
5   the halftone matrix and the multielement array; and
6   employing the relationship in the applying step to con-
7   trol application of the correction pattern to the halftone
8   matrix.

1   11. (original) The method of claim 9, wherein:
2   the printing step comprises single-pass printing.

1   12. (original) The method of claim 9, for use with said at
2   least one multielement incremental-printing array that com-
3   prises a plurality of scanning multielement printing arrays
4   that print in a corresponding plurality of different colors or
5   color dilutions, each multielement printing array being sub-
6   ject to a respective swath-height error; and wherein:
7   the measuring, deriving, applying and printing steps are
8   employed to modify swath height of at least one of the scan-
9   ning multielement printing arrays, for accommodating any
10   swath-height error present in each multielement printing array
11   respectively.

1 13. (original) The method of claim 9, for use with said at
2 least one multielement incremental-printing array that com-
3 prises a plurality of multielement printing arrays that print
4 in a corresponding plurality of different colors or color
5 dilutions, each multielement printing array being subject to a
6 respective pattern of printing-density defects; and wherein:
7   the measuring, deriving, applying and printing steps are
8 each performed with respect to each multielement printing
9 array respectively.

1 14. (original) The method of claim 13, for use with such
2 plurality of multielement incremental-printing arrays that are
3 also each subject to a respective swath-height error; and
4 wherein:
5   the measuring, deriving, applying and printing steps are
6 also employed to modify swath height of at least one of the
7 multielement printing arrays, for accommodating any swath-
8 height error present in each multielement printing array
9 respectively.

1 15. (original) The method of claim 9, wherein:
2   the halftone thresholding process comprises definition of
3 a halftone matrix.

1 16. (original) The method of claim 9, wherein:
2   the halftone thresholding process comprises an error-
3 diffusion protocol.

1 17. (original) The method of claim 16, wherein the error-
2 diffusion protocol comprises at least one of:
3   a progressive error-distribution allocation protocol of
4 such error-diffusion halftoning; and
5   a decisional protocol for determining whether to mark a
6 particular pixel.

1 18. (original) The method of claim 9, wherein:
2   the applying step comprises replacing values above or
3 below a threshold value.

1 19. (original) The method of claim 9, wherein:
2   the applying step comprises multiplying values by a
3 linear factor.

1 20. (original) The method of claim 9, wherein:
2   the applying step comprises applying a gamma correction
3 function to values.

1 21. (original) The method of claim 9, wherein the modifying
2 step comprises a combination of at least two of:
3   replacing values above or below a threshold value;
4   multiplying each values by a linear factor; and
5   applying a gamma correction function to values.

1   22.   (original)   The method of claim 9, wherein:

2   for each of the plurality of multielement arrays, the

3 measuring, deriving and applying steps are each performed at

4 most only one time for a full image.

1   23.   (original)   The method of claim 9, wherein:

2   the applying step comprises modifying the darkness of

3 substantially each mark printed by an individual printing

4 element whose density is defective.

1   24.   (original)   The method of claim 9, wherein:

2   the applying step comprises modifying the average number

3 of dots printed by an individual printing element whose den-

4 sity is defective.

1   25.   (original)   A method of printing a desired image, based

2 on input image data, by construction from individual marks

3 formed in a pixel grid by at least one scanning multielement

4 printing array; said printing being subject to print-quality

5 defects due to departure of printing-medium advance from an

6 optimum value; said method comprising the steps of:

7   measuring a parameter related to such print-quality

8 defects;

9   based on the measured parameter, scaling such input image

10 data to compensate for said departure; and

11   printing such image using the scaled input image data.

1 26. (original) The method of claim 25, wherein:

2 the parameter comprises such print-quality defects; and

3 the measuring step comprises measuring such print-quality

4 defects.

1 27. (original) The method of claim 26, wherein:

2 the defects comprise swath-height error; and

3 the measuring step comprises measuring swath-height

4 error.

1 28. (original) The method of claim 26, wherein:

2 the defects comprise area-fill nonuniformity; and

3 the measuring step comprises:

4

5 using a sensing system to measure area-fill non-

6 uniformity for plural printing-medium advance

7 values, and

8

9 selecting a printing-medium advance value that cor-

10 responds to minimum area-fill nonuniformity.

1 29. (original) The method of claim 25, wherein:

2 the parameter comprises such optimum value; and

3 the measuring step comprises determining such optimum

4 value.

1   30.   (original) The method of claim 25, for use with said at

2   least one scanning multielement printing array that comprises

3   a plurality of multielement printing arrays that print in a

4   corresponding plurality of different colors or color dilu-

5   tions, each multielement printing array being subject to a

6   respective swath-height error; wherein:

7   the measuring, scaling and printing steps are each per-

8   formed with respect to each multielement printing array re-

9   spectively.

1   31.   (original) The method of claim 30, wherein the printing

2   step comprises:

3   comparing optimum advance values or swath-height values

4   measured for the plurality of multielement printing arrays

5   respectively, to find the smallest of said values;

6   selecting a particular multielement printing array whose

7   said value is substantially the smallest;

8   using, in common for the plurality of printing arrays,

9   substantially said selected smallest value; and

10   for substantially each array other than the particular

11 array, operating with a respective reduced number of printing

12 elements and with rescaled data, to match an actual effective

13 swath height of the particular array.

1   32.   (original) The method of claim 31, wherein:

2   said smallest of said values is determined taking into

3   account the maximum available number of printing elements in

4   the corresponding array.

1 33. (original) The method of claim 25, further comprising
2 the step of:
3   after the scaling step, iterating the measuring and
4 scaling steps to allow for nonlinearity in such print-quality
5 defects.

1 34. (new) The apparatus of claim 1, wherein:
2   the multielement printing array is an inkjet printhead.

1 35. (new) The method of claim 9, wherein:
2   the multielement printing array is an inkjet printhead.

1 36. (new) The method of claim 25, wherein:
2   the multielement printing array is an inkjet printhead.